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Hearing Aid Industry The Hi-Tech Human Side



The hearing aid industry offers lucrative opportunities for companies that can create distinctive and high-quality value propositions due to a combination of surging global demand and relatively low market penetration. While innovation, technology, and data science are key drivers for success in this competitive landscape, the industry's hallmark of personalized service elevates the human touch as the true differentiator. For the customer – often a patient – the measure of recovery isn't just reflected on the decibel scale of hearing, but rather in the profound emotional impact of restored sound. In this article, we explore the structure of the hearing aid market and the customer journey, shedding light on the critical elements that drive competitive advantage.

HEARING AIDS//INNOVATION//TECHNOLOGY//DATA SCIENCE//HUMAN TOUCH

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Hearing aids are vital medical devices that offer people with hearing loss the opportunity to regain their hearing function, whether it's congenital or due to a variety of factors that result in reduced hearing capacity. Typically dispensed through prescribed channels, their use requires the expertise of specialized professionals trained to regulatory standards established in almost every country.

Over the past three decades, the hearing aid landscape has undergone a remarkable transformation, driven by relentless technological advances. Today's hearing aids are compact digital marvels, available in a variety of models carefully designed to meet a wide range of physiological and auditory needs. They offer programmable features that optimize performance through frequency modulation and skilfully manage different listening environments. They also integrate seamlessly with other devices to form comprehensive hearing

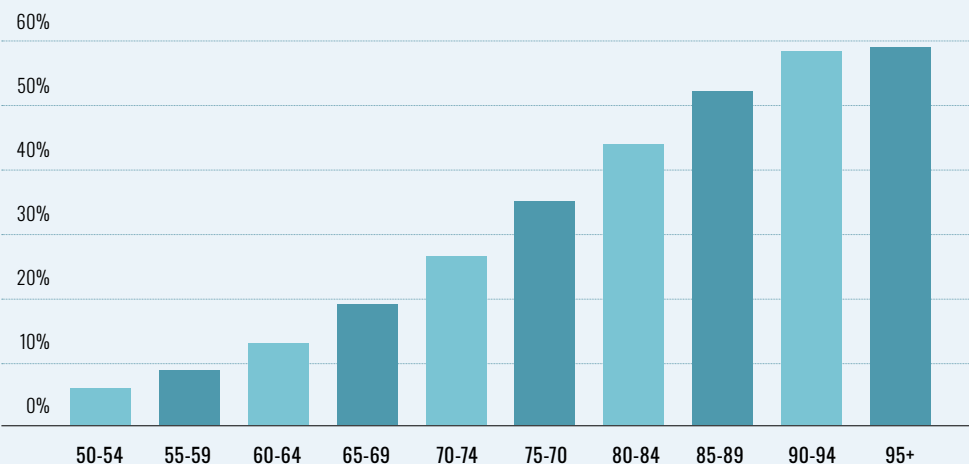
systems, and are increasingly environmentally friendly thanks to rechargeable battery technologies.

Hearing loss can be caused by a variety of factors. Congenital forms can result from hereditary factors or complications during pregnancy and childbirth, while acquired hearing loss can result from disease, infection, genetic predisposition, unhealthy lifestyle, excessive noise exposure, and the natural aging process. The severity of hearing loss is typically measured in decibels of loss. Severity ranges from mild hearing loss of 20-35 dB in the better ear, to moderate (35-50 dB), to moderate-severe (50-60 dB), to severe (65-80 dB), to profound (80-95 dB). If the hearing loss is greater than 95 dB, the loss is total and the person is deaf. It is easy to understand that an increase in the degree of hearing loss causes many difficulties for people: with a mild loss they have only minor difficulties, especially with background noises, while with a moderate hearing loss it is difficult to hold a conversation, especially in a noisy environment. Therefore, hearing loss above this level is considered a disability and people who suffer from it need treatment and rehabilitation.

WHO ARE THE HEARING IMPAIRED?

According to the World Health Organization (WHO, 2022), more than 1.5 billion people worldwide are affected by hearing loss, representing approximately one-fifth of the world's population. Alarming, this number is increasing and is expected to reach 2.5 billion by 2050. When focusing on hearing loss requiring treatment, such as moderate to severe cases, a worrying trend emerges in all developed regions, as highlighted by WHO data (2022). An analysis of prevalence rates shows a similar pattern across different developed regions, with figures of 7.1% in the Western Pacific, 5.5% in Southeast Asia, and 6.2% in both the U.S. and Europe. Conversely, prevalence is significantly lower in Africa (3.6%) and the Eastern Mediterranean regions. This difference can be attributed to several factors, including the comparatively younger average age of the population, despite the presence of aggravating factors such as malnutrition, disease, and infection in these regions.

FIGURE 1. HEARING LOSS BY AGE (MODERATE AND HIGHER)



HEARING AND AGE

By the age of 50, age-related hearing loss – moderate and severe – reaches significant levels (Figure 1). Before the age of 50, the prevalence of the phenomenon is lower, with minimal levels in newborns and infants (0.5% to 1 year) and increasing levels with age (3.9% in the 45-49 age group). It is estimated that one in four people over the age of 60 suffers from hearing loss.

As the population of the Western world ages and the incidence of hearing loss increases, the importance of this phenomenon is growing, creating new opportunities for companies in the hearing aid industry. In the first 20 years of the new century, the percentage of people over 65 in Europe rose from 16% to 21%; in the same period, the number of people over 80 reached 6% of the total population (Italy being the oldest country). Hearing loss of 35 dB or more affects 10% of Europeans over 50 and 40% of Europeans over 70.

Source: processing of WHO data (2022).

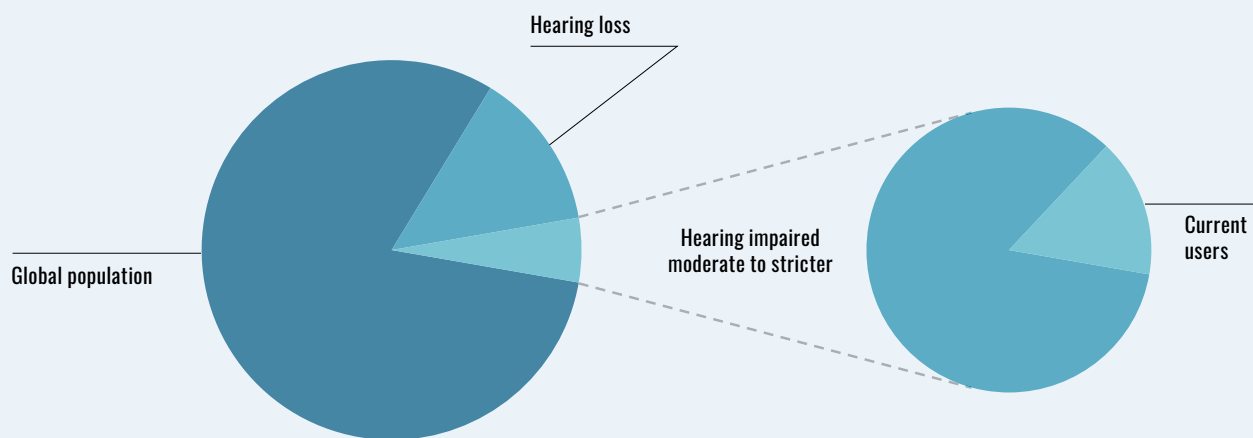
If we compare the number of hearing-impaired people who need treatment with the present value of the penetration rate of hearing aids, it is clear that most potential users have not yet adopted hearing aids, despite the serious consequences that can occur (Figure 2).

Since the 1990s, scientific research has demonstrated a direct correlation between hearing loss and an increased risk of developing dementia, experiencing accidental falls due to impaired balance, and experiencing cognitive decline (Lin et al., 2023). Fortunately, the use of hearing aids to mitigate hearing loss not only addresses a major contributor to cognitive decline, but also serves to mitigate the associated risks, effectively aligning them with those of individuals with normal hearing (Morrison, 2023; Skwarecki, 2023). Despite the clear benefits, a significant proportion of those who could benefit from hearing aids do not use them for a variety of reasons. These barriers are closely linked to economic disparities in different regions, which affect overall access to healthcare – and therefore to hearing health services. Factors such as the initial cost of hearing aids, professional fees,

and reimbursement systems all play a role. There is also a widespread lack of awareness about hearing health and its implications. In addition to economic barriers, societal attitudes perpetuate the stigma associated with hearing loss, hindering acceptance and proactive measures to address it. Hearing loss is often misconstrued as an inevitable consequence of aging, leading individuals to deny or overlook its significance.

While hearing loss is commonly associated with the elderly, it's important to recognize that its impact transcends age demographics. The WHO estimates that more than 1.1 billion young people are at risk of hearing loss due to prolonged exposure to excessive noise: 40% of young people between the ages of 12 and 35 may be exposed to harmful noise levels in recreational settings. Efforts by industry and national health systems are actively addressing the identified causes, leading to increased adoption rates. Increased awareness is effectively reducing the stigma associated with hearing loss, supported by rapid technological advances in the industry. In addition, increased adoption rates generally lead to cost reductions due to economies of scale.

FIGURE 2. POTENTIAL AND CURRENT USERS OF HEARING AIDS (2022)



Source: processing of WHO data (2022).

Despite these advances, the gap between those who need hearing aids and those who use them remains significant. Currently, the global user rate is less than 17%, with more than 400 million people estimated to need hearing aids. In Europe, where adoption rates are highest, only 23% of hearing-impaired people use hearing aids. Regional disparities persist, with penetration rates ranging from 10% in Africa to 19% in the Western Pacific. In the United States, the adoption rate of 17% reflects the global average.

THE HEARING AID MARKET

Currently, the total value of devices sold to end-users in the hearing aid industry is approximately 17 billion euros, with an average annual growth rate of about 3%. It's important to note that the number of users does not directly correlate with the number of devices sold, as solutions can vary between monoaural or binaural, and the durable nature of these products makes the replacement rate of existing devices a significant factor in estimating market potential, with the average life of a device hovering around 5 years.

The manufacturing landscape is highly concentrated, with the top five manufacturers dominating the market, particularly in developed countries. These multinational companies, mostly based in Europe (with one in the U.S.), are deeply rooted in the medical technology sector, and often diversified into other device-related manufacturing industries, such as hearing diagnostics, as well as broader sectors such as communication devices, electrification processes, automation, and digitalization, all of which require high levels of research and innovation. On the other hand, the distribution of hearing aids to end users is a very diverse landscape involving different types of companies. This heterogeneity is primarily due to the unique conditions of hearing aid distribution. Factors such as different regulations and standards in different countries contribute to this heterogeneity. In addition, the purchasing process

for hearing aids itself adds complexity. While some markets, such as Spain and to some extent the U.S., are entirely private and uninsured, others, such as France, are fully insured. In some cases, such as Italy, the healthcare system intervenes with partial or full coverage for specific scenarios.

THE PURCHASING PROCESS

The use of hearing aids usually begins with a prescription from a healthcare professional after a hearing loss has been identified through appropriate diagnostic tests performed by trained and authorized professionals using certified instruments. It is certainly possible to discuss the need for actions aimed at raising awareness among those potentially affected in order to encourage the spread of better hearing care, including prevention, while reducing the stigma that still exists. Although this is obviously a fundamental issue, it goes beyond the specific interest addressed here. The selection of a hearing aid, including its technology and type, is determined not only by the degree of hearing loss, but also by individual characteristics such as the anatomy and physiology of the ear, as well as the cognitive and motor skills required to use the device. In addition, lifestyle preferences, needs, and expectations further influence the decision-making process, especially when considering the different activities and technological familiarity of segments of the population, including older adults who are actively engaged in work and social interactions. Therefore, in order to understand people and translate their needs into effective solutions, the systematic collection and management of data on habits and needs is critical.

Assessing these elements requires specialized technical and interpretive skills that are unique to professional staff. These include the ability to access a comprehensive and representative data set that measures needs and behaviors, coupled with expertise in the technical and technological aspects of hearing solutions. Innovations in information systems, particularly in data volume, accuracy,

and coding within interpretive models, are critical sources of competitive advantage. However, simply identifying the most suitable device for an individual is not enough to ensure its effectiveness, as many devices on the market require personalized fitting through advanced programming. This process allows the precise calibration definition of individual sound frequencies to optimize the hearing aid. The accuracy of this fitting phase is critical because even the highest quality hearing device will not provide benefits if it is not properly calibrated.

The fine-tuning of hearing aid specifications is a true customization of the listening experience, which relies heavily on the hearing healthcare professional's ability to actively listen and translate individual needs into effective solutions. While technical skills and technological tools are fundamental to analysis and interpretation, the lynchpin is the hearing healthcare professional's sensitivity to interpreting implicit needs and discomforts that may elude explicit expression and thus timely data collection.

The process of purchasing a hearing aid is complex and articulated, especially for first-time buyers. It should be emphasized that the use of hearing aids is, or should be, a lifelong commitment. Given the progressive nature of hearing loss, the need for assistance typically continues and may even worsen over time. As a result, people with hearing loss often need to replace their hearing aids periodically, either because of technological obsolescence or in search of improved solutions. Forgoing prosthetic devices, including cochlear implants where appropriate, is tantamount to giving up hope of restoring hearing function. The purchasing process is strongly influenced by the high level of psychological investment, which in many cases extends to family members and/or caregivers of the hearing-impaired individual.

The level of psychological involvement in the purchase of hearing aids is influenced by both the social visibility of the product and contextual factors related to its use. Social visibility includes subjective interest in the category, which can be influenced by negative attitudes and perceptions. In

addition, the risks associated with purchasing such devices, typical of health-related products, contribute significantly to psychological involvement. These risks include functional and physical aspects such as discomfort or inadequate recovery of hearing ability, economic concerns due to high purchase costs, and psychosocial factors due to the stigma associated with the problem and the product category.

The complexity of the purchasing process is compounded by the nature of the benefits sought. While hearing aids are categorized as "research products," similar to high-tech products, their evaluation extends beyond the physical product to include a broader service component. This service facilitates experiential benefits that can only be assessed after use. In addition, improvement in hearing is not immediate with the use of hearing aids but requires a period of time for the ear and brain to adapt to the new auditory stimuli. In essence, people with hearing loss need to be active participants in their efforts to improve their hearing, which underscores the importance of the relationship with hearing healthcare professionals. These professionals play a key role in guiding users through the assimilation process and helping them adapt to their new auditory capabilities.

Throughout the life of a hearing aid, maintenance is essential to maintain its functionality, and adjustments such as reprogramming may be necessary to accommodate changes in the individual's hearing situation or specific needs. It is widely recognized that the level of commitment and the desired benefits shape the structure of the purchasing process. In addition, several other factors have a significant impact on this process. Psychological factors, for example, exert a significant influence from the outset, potentially preventing individuals from addressing the issue promptly and leading to delayed awareness. Research suggests that it takes several years on average, about four years in the American market (Powers and Carr, 2022), for people with hearing loss to seek professional help. Motivations, perceptions, attitudes, and learning dynamics further determine the intensity and duration of each stage of the process, as well as the

assessment of satisfaction or dissatisfaction after use. Social and contextual factors also play a key role and influence all stages of the journey. In addition, the process is often set in motion by external interventions, with family members often taking responsibility for identifying hearing loss issues and, in some cases, actively participating in the decision-making process alongside the individual.

In general, the dominant culture within an individual's environment significantly influences their perception of hearing loss and willingness to consider hearing solutions, often influenced by varying degrees of stigma. While systematic interventions by industry companies and healthcare systems can help reduce stigma and promote a culture of hearing, personalized interventions are needed to address the individual impact of these factors on the purchasing process. Industry personnel play a critical role in mitigating or eliminating negative effects by establishing personal, trusting relationships with individuals seeking hearing solutions. These personal, fiduciary relationships are critical in guiding individuals through the buying process. While technology and data are essential in their contribution to knowledge and process efficiency, they alone are not sufficient to create satisfaction. Ultimately, satisfaction depends on trust, which requires the creation of human connections that facilitate service delivery.

THE DISTRIBUTION STRUCTURE

The complexity and uniqueness of the purchasing process for hearing solutions requires the establishment of a widely dispersed network of retailers in markets around the world to facilitate direct access to specialists and maintain mutually beneficial relationships. The centrality of these relationships largely explains the minimal market share of online retailing in this sector, which represents less than 3% of the total global market. Hearing aid distribution also includes non-specialist retailers, which account for approximately 10% of the total market value. These include pharmacies,

large-scale retail stores and optical stores that primarily sell basic amplification devices that are not programmable to meet the specific needs of the hearing-impaired.

It's important to note that technologically advanced hearing aids, as described above, are primarily manufactured by a few large companies. Most are distributed by independent, specialized stores, either single locations or small chains owned by private individuals. These stores typically employ qualified salespersons who receive specialized training and are registered according to country-specific regulations. While these specialty stores are geographically dispersed in different regions of the world, their customer base is naturally limited to the immediate vicinity of their locations. Nevertheless, together they account for nearly half of the global market share, underscoring the importance of their role in the distribution and accessibility of hearing solutions.

In addition to independent specialty stores, there are distribution networks run by the same groups as the manufacturing companies, operating extensively in single or multiple national markets or with a large number of branches in several countries. Together, they account for almost 20% of the world market. Specialized distribution networks such as Amplifon, a world leader with approximately 12% of global sales, also play an important role. Headquartered in Italy, Amplifon operates in 26 countries under various brand names. The critical role of retailers as high-value service providers is reflected in their strong brand awareness. While individuals may not readily recall the brands of equipment manufacturers, they often remember the brands of retailers because of their status as category references. The same networks belonging to manufacturer groups also have individual branding strategies, with specific brands for retailer networks that often emphasize the sound recovery function. In Italy, for example, more than half of hearing aid owners are only vaguely familiar with the brand name of their hearing device (Anovum, 2022), while the names of retailers, especially those of leading retailers, are highly recognized and

sometimes mistakenly perceived as manufacturers. The emphasis on service excellence to build and maintain profitable relationships underscores the importance of direct physical contact between hearing impaired individuals and hearing care professionals. This service component, an integral part of the hearing aid value proposition, serves as a key differentiator that drives brand loyalty. Trust is the cornerstone of brand loyalty, and in the customer-patient relationship, trust is cultivated through a deep personal bond.

Regardless of their structure, distribution networks include physical points of sale strategically located in target markets. These points of sale serve as hubs where diagnostic testing is performed, and relevant information is provided to facilitate the selection and personalized fitting of hearing aids for each person. While tools and technologies support the diagnostic and interpretive activities of professionals, they cannot replace the essential human interpersonal skills required to effectively initiate and positively complete the process. The accuracy of these processes depends on several factors, including the quality of the technologies used, the availability and efficiency of supporting information systems, and the technical expertise of the professionals involved. The widespread presence of physical stores not only increases accessibility by minimizing search barriers, but also serves as a means to promote acceptance of hearing loss, which remains a significant barrier to increased penetration.

MANAGERIAL IMPACT FACTOR

- **Proximity to customers:** establishing physical distribution networks and placing specialized professionals in appropriate locations to ensure proximity between companies and customers, facilitating solution identification and customization.
- **Personalized device settings:** recognizing the importance of setting devices according to the specific needs and learning abilities of each customer, which requires operator intervention to achieve an optimal match between needs and solutions.
- **Differentiation through the distribution network:** leverage the physical distribution network as a central reference point for category evaluation and offering differentiation, thereby enhancing market competitiveness.
- **Focus on experiences and emotionss:** recognizing that the goal for people with hearing loss goes beyond the recovery of decibels and emphasizing the restoration of hearing function to enable experiences such as understanding, sharing, and deriving pleasure and emotion from hearing.
- **Building customer relationshipss:** emphasizing end-user contact and fostering trusted relationships that serve as the cornerstone for the successful deployment of advanced technologies.



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